

PROCESSING AND PROSPECTIVE INDEX									
<p>B</p> <p>*425. Superdurability of New Hard Corundum Refractory. (In Russian.) N. V. Solomin. <i>Glass and Ceramic Industry</i> (U.S.S.R.), no. 4, 1947, p. 20-21. Results of experiments on the comparative corrosion resistance of different alumina-containing refractories in contact with alkaline sulfate at 1350°C. are charted. Also describes and diagrams the laboratory apparatus used to determine the corrosion resistance.</p>									
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>									
<p>13000 5710311V 13000 5710311V 13000 5710311V 13000 5710311V</p>									
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7

Superstability of new dense corundum refractories. N. V. SOLOVYEV, *Shtofnaya i Keram. Prom.*, 5 (4) 20-21 (1947).—The resistance of vitreocorundum and thermitocorundum in a molten mixture of 85% Na₂SO₄ and 15% CaSO₄ in the presence of a reducing agent, at 1350° and 1450°C., was 20 to 40 times greater than that of fire-clay refractory and several times greater than that of mullite. For more objective and accurate determinations of resistance to glassmelt, a corrosimeter is used in which the specimen is rotated in glassmelt. 1 diagram. B Z K.

1ST AND 2ND GROUPS												PROCESSES AND PROPERTIES INDEX												3RD AND 4TH GROUPS											
CA																								19											
<p style="text-align: center;">Corundum glass - a new highly refractory material. I. I. Kitagorodskii, N. V. Bolozin, A. I. Polinkovskaya, and S. F. Volchanov. <i>Lagoya Prom.</i> 7, No. 8, 21-1 (1947).--Glass, rather than clay, is used as the binding agent in the preps. of corundum refractories, resulting in increased thermal stability. Also in <i>Ogneupory</i> 13, 22-5 (1948). Marshall Sittig</p>																																			
450-55A METALLURGICAL LITERATURE CLASSIFICATION																																			
FROM SYNOPTIC																		TO FULL TEXT																	
GROUPS #1																		GROUPS #2																	
SYNOPTIC																		FULL TEXT																	

649. Zirconium High Temperature Refractory Formed from Mariopole Zirconium Concentrate, by I. I. Kitaigorodski and M. V. Solomin. Doklady Akademii Nauk SSSR 56, p. 839-841, 1947.

SOLOMIN, N. V.

PA 58704

USSR/Minerals
Cement
Glass

May 1947

"Theory of Glass-Cement Binding of Crystal Bodies," I. I. Kitaygorodskiy, N. V. Solomin,
2 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVI, No 6

explains great stability of a glass-cement body in operation of highly aggressive fusion and
its high mechanical qualities in temperature exceeding melting point of glass by several
hundred degrees. Submitted by Academician D. S. Belyankin, 23 Dec 1946.

PA 58704

SHARIN, M. V.

Sharon, M. V. - "Increasing the stability of refractory materials in open furnaces,"
Trudy Tekhn. Konf-tsi i. obshchestven. nauch.-issled. Moskva, 1948, p. 50-55

SO: U-7600, 10 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 6, 1949).

1ST AND 2ND GROUPS										PROCESSING AND PROPERTIES INDEX										100 AND 5TH GROUPS									
<p>Petrographic control of refractory materials. N. V. SOLOMIN, <i>Soviet Ceramic</i>, 5 [11] 21-22 (1948). The results of petrographic analysis are considerably vitiated because of the processes occurring during the gradual cooling of the refractory material. To remedy this defect, the material to be tested is heated, held for not less than 1 hr. at the temperature of firing or service, and then rapidly cooled with a strong stream of air. During the heating and holding, all the crystals, which were separated during gradual cooling, melt, and the material approaches to some extent the condition of the material corresponding to the high temperature of firing or service, and during the rapid cooling this condition is fixed. The material can then be cut for petrographic analysis. This method was used in the analysis of fire-clay refractories and electromelted mullite; in both cases there was a great difference in phase composition between the rapidly cooled and the gradually cooled specimens; the former had a larger content of glass and less mullite.</p> <p style="text-align: right;">B Z K</p>																													
<p>ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION</p>																													
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SOLOMIN, N. V.

Glass corundum. I. I. KITALGORSEI, N. V. SOLOMIN, A. P. KUNIKOVA, AND S. F. VOLCHANOV. *Osnovy. 13* (1) 22-25 (1948). — In the laboratory, technical alumina was mixed with 1% ZnO and fired to 1450°C. to insure maximum transformation of γ -alumina to α -alumina prior to mixing the charge. Organic binder (not specified) and water were added to the charge in amounts required for semidry ramming (hand and pneumatic), and the bars were fired at 1460° to 1500°. For comparison, bars were prepared from 77% Chasov Yar clay grog and 23% Chasov Yar binding clay. Compared with the multigrog product, the glass corundum had a firing shrinkage 7 to 8 times as large, an apparent porosity 2 to 3 times as large, and a resistance to sulfate liquors 12 to 23 times as great. Sulfite-cellulose extract is recommended as a plasticizer because of its slow decomposition within a wide temperature range. The firing shrinkage was considerably improved by firing a portion of the charge in the form of briquettes, grinding the briquettes, and adding the glass-cement grog in amounts of 30 to 80% to the original charge. On a commercial scale, use was made of technical alumina analyzing not less than 97.3% Al_2O_3 , not over 0.4% SiO_2 , not over 0.006% Fe_2O_3 , not over 0.7% Na_2O , and ignition loss about 1.5%. As a glass binder, cullet of ordinary composition was used. Bars were prepared by pneumatic ramming. Air shrinkage was less than 1%. Products were fired for ten days and held for 24 hr. at a maximum temperature of 1500° to 1520°C. The properties were better than those of laboratory specimens; bulk specific gravity was 3.05, and apparent porosity was about 14%. B.Z.N.

ITERATURE CLASSIFICATION

SOLOMIN, N. V.

PA 43/43T9

USSR/Chemistry - Glass, Properties of
Chemistry - Periodic System

Feb 1948

"Application of L. I. Mendeleev's Periodic Law to
the Properties of Glass," N. V. Solomin, 3 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LIX, No 4

Describes experiments to determine effect of separate glass components on their physical qualities, and shows positive results in case of equimolecular components. Submitted by Academician I. V. Greven-shchik, 4 Dec 1947.

43T9

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSING AND PROPERTY INDEX																			
<p>PRINCIPLES OF NEW-PHASE SEPARATION WITH EXAMPLES FROM SILICATE TECHNOLOGY. N.V. Solomin. <i>Doklady Akad. Nauk S.S.S.R.</i>, 60 [1] 93-95 (1948). — The ratio of the dimensions of new-phase formations to their number per unit volume is directly proportional to the rate of diffusion and to the temperature and inversely proportional to the viscosity of the medium. This characteristic has great significance in the removal of gas bubbles from molten glass where it is essential that the number of gas bubbles per unit volume be at a minimum and their average size at a maximum; this can be attained only when the viscosity is at the possible minimum. Also by means of diffusion the new-phase formations of smaller dimensions will continue to decrease until they finally disappear while those of larger dimensions will increase. This rearrangement takes place both before and after phase equilibrium is reached, and it may occur at constant temperature. An example of this is the process of mullitisation. The growth of larger mullite crystals at temperatures above 1200° C. occurs,</p>																			
<p>ASAC-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																			
<p>SECTION 1</p>										<p>SECTION 2</p>									
<p>SECTION 3</p>										<p>SECTION 4</p>									

apparently, simultaneously with a decrease in the total mullite content because of the disappearance of the smaller crystals. Similar rearrangements of new-phase formations occur in emulsions and in the systems liquid-gas. This was determined experimentally by recording with the aid of a microscope the number and sizes of gas bubbles in softened quartz glass after it was heated to about 1650°. It is quite possible that an increase in plasticity of clay paste and ceramic mixes during storage is mostly the result of similar size rearrangement of the gas inclusions.

B.Z.K.

RECEIVED AND REPRODUCED IN THE

9 - 2 - 49

Heat resistance of refractory materials. N. V. Sidorov. *Metall. i Azot.*, 6(11)8-9 (1949). — Instead of the standard methods for determining refractoriness, S. proposes the use of his viscosimetric method in which the rate of deformation (inverse of viscosity) under constant temperature and load is measured and the results are expressed in poses. The greater the viscosity, the greater is the resistance to high temperature under load. By plotting log of viscosity against temperature, a practically straight line is obtained. The method has been in practical use since 1911; examples are described. B. Z. K.

ASB SLA — METALLURGICAL LITERATURE CLASSIFICATION

12

1949, V. V. Goncharova, I. I.

O stat'ye prof. V. V. Goncharova ("O steklokeramike kak ognepoornom materiale". Zhurn. "Ogneupory", 1949, No. 4.) Ogneupory, 1949, No. 6, s. 292.

SO: Isotopis' Zhurnal'nykh Statey, No. 22, Moskva, 1949

Improving the quality of grog refractories for the glass industry. *Sov. Tekhn. Strel. i Keram.* 6, No. 9, 15-18(1949).—Changes in process and suggestions for improvement in mixing clay and grog, grinding of grog, prep. of mixes, and firing. The max. grain size of grog for wall blocks of furnaces has been reduced to 0.75 to 1 mm. and for bottom blocks to 3 mm. to prevent seepage of glassmelt into the block and washing-out of grog into the melt. Mold design should be such that rammed layers of blocks will be perpendicular to working surface of blocks; ramming should be continuous, without interruptions, to prevent drying of the surface and sepn. into layers. Densifying should be practiced where advantageous. In most cases, the max. allowable temp. change (τ) should be detd. for the following 3 periods of firing: (1) no evolution of gas and no shrinkage, (2) intensive evolution of gas, and (3) intensive shrinkage. For the first period, $\tau = C_1 \lambda P / \alpha E \epsilon^2$, for the second period, $\tau = C_2 \lambda P / \alpha E \epsilon^2$, and for the third period, $\tau = C_3 \lambda P / \alpha E \epsilon^2$, where λ is heat cond., α is coeff. of expansion, P is tensile strength, E is modulus of elasticity, g is gas permeability, s is shrinkage, η is viscosity, δ is thickness, and C_1 , C_2 , and C_3 are const. Compared with practice in 1940, the holding period at max. temp. has been increased to 8-12 hrs.; this increased the strength of the blocks but required grinding to dimensions. H. Z. Kamich

COMMON ELEMENTS																										COMMON ELEMENTS																									
COMMON ELEMENTS																										COMMON ELEMENTS																									
<p>PROCESSING AND PROPERTIES INDEX</p> <p>Nature of erosion in glassmelting furnaces. N. V. Shtrom. <i>Shtro i Keram.</i>, 6 [12] 13-14 (1949).—The friction (f/S), occurring on the boundary of the laminar flow of a viscous glassmelt and a solid wall along which the flow moves, can be calculated from $f/S = 2\eta V_{max}/x$, where f is tangential force along the wall, S is area of the wall, η is viscosity of the glassmelt, V_{max} is maximum speed of flow, and x is distance between the wall and the layer of glassmelt having maximum speed. When two refractory walls move in relation to one another in the glassmelt (e.g., rotation of the plunger within the bushing in feeding glassforming machines), f/S can be calculated from $f/S = \eta V/x$, where V is linear speed of the plunger relative to the inner surface of the bushing and x is the clearance between bushing and plunger. Calculations with both equations indicate that erosion, as a mechanical abrasive action of the glassmelt upon the refractories, is of no practical significance. Greater destruction of the refractories at places where the movement of the glassmelt is greatest can be explained only by the increased corrosion due to the larger coefficient of exchange of the glassmelt near the wall. This coefficient is apparently proportional to dv/dx in the flow near the wall.</p> <p style="text-align: right;">H.Z.K.</p>																																																			
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СКОТТ, Н. В.

33188. Povysheniye Achestva Shamotnogo Priasa. Steklo I Keramika, 1949, No. 9
c. 15-18

SC: Ietopis 'Zhurnal'nykh Statey, Vol. 45, Moskva, 1949

117 AND 118 CODES																										119 AND 120 CODES																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>Planning the composition of technical glasses. N. V. SOLOMIN <i>Shtelo i Keram.</i>, 7 (10) 14-17 (1950).—S. discusses the following principles: stability of the vitreous state, stability against separation in the liquid phase, chemical stability, and the realization of given physical properties (viscosity and rate of solidification). 4 references B Z K</p>																																																			
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

1ST AND 2ND ORDER		PROCESS AND PROPERTIES INDEX		100 AND 2TH ORDER	
<p>Investigation of deformation of refractory materials under load and of effective viscosity at temperatures up to 2800°. N. V. Solomin. <i>Ogneupory</i>, 15 [4] 183-188 (1950). -The test shape is heated in a furnace and subjected to pressure by a vertical weight-loaded rod which is provided with linkage and a pointer with a scale to show a 15-fold magnification of the actual movement of the rod during the test. The equipment is intended for testing shapes having a diameter/height ratio just as in standard test shapes used for determining deformation under load at high temperatures. It permits variations in diameter within limits of 10 to 12 mm. and of height within limits of 14 to 16 mm.; diameter can be increased to 18 mm. Equipment can also be used to determine shrinkage and growth, flexure resistance, and even coefficient of expansion by the differential method (by comparison with graphite or another standard). Viscosity was determined by the method described by S. (J. <i>Tech. Phys.</i> (U.S.S.R.), 15 [11] 2012-72 (1945)). Deformation tests were made with graphite, washed kaolin, and zirconium concentrate. For graphite, the first signs of deformation occurred at 2700° to 2800°C., for kaolin at about 1400°, and for zirconium concentrate at about 1300°. Stabilized technical zirconia showed better results (4% deformation at 2000°). Illustrations show equipment, including an electric furnace. <i>Cf. Ceram. Abstracts</i>, 1960, Sept., p. 210a. H Z K.</p>					
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>					
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BCS

Refractories

2284. The thermal expansion of some refractories used in the glass industry.—N. V. SOLOMIN, N. M. GARDINA and N. A. FRIDLENDER (*Sov. Keros.*, 8, No. 3, 8, 1961). Measurements were carried out of the thermal expansion of some refractories with a dilatometer of the Solomin type, which is described in detail. The thermal expansion curves for fired kaolin, firebrick and refractory porcelain are smooth and almost coincide with each other. Silica of s.g. 2.48 behaves considerably worse during heating than that with s.g. 2.36. The thermal expansion of electrofused zircon-mullite is characterized by a smooth curve. The glassy phase of zircon-mullite gives a sharp increase in the expansion coeff. above 600° C.; this might account for the dangerous stresses in mullite blocks at 700°-800° C. during the warming up of glass tanks. With fired corundum refractories the expansion curves showed no sharp changes in the expansion coeff. The expansion coeffs. of corundum refractories are almost twice as high as those of frog refractories. (8 figs., 9 tables.)

BCS

*Ceramic Products
Refractories*

375. A device for reducing damage to green glass tank blocks.—N. V. SUTCHIN (Sov. Keram., 8, No. 7, 14, 1951). Tongs with grip-plates are recommended for moving heavy tamped glass-tank blocks to be fired; the blocks weigh over 2 cwt. and have a crushing strength of only 150-350 lb./sq. in. and therefore break easily. (2 figs.)

POLINKOVSKAYA, A.I.; SOLOMIN, N.V.

Production test of different refractory materials as regenerator checkers
of glass tanks. Steklo i Keram. 9, No.3, 3-5 '52. (MLRA 5:2)
(CA 47 no.19:10192 '53)

SOLOMIN, N.V.

Fuel Abstracts
Vol. 14 No. 4
October 1953
Refractories

3842. CLAY-KAOLIN MIXTURES FOR GLASS-TANK REFRACTORIES AND RADIATION PYROMETER SHEATHS. Solomin, N.V. (Steklo. Keram. (Glass & Ceramics, Moscow), 1952, vol. 9, (1), 7). Mixtures of refractory clay with 60-80% of kaolin can be fired to grog at comparatively low temperatures. The inclusion of kaolin as grog and bond considerably improves the properties of glass-tank refractories fired at slightly higher temperatures. In some cases an addition of kaolin to a clay renders the latter suitable for the production of satisfactory glass-tank refractories. Clay-kaolin mixes with a high kaolin content may be used for the manufacture of radiation-tubes for pyrometers. B. Ceram. R.A.

SOLOMIN, N.V., doktor tekhnicheskikh nauk, professor; KUKOLEV, G.V., doktor
tekhnicheskikh nauk, professor, redaktor.

[Refractory materials for glass furnaces] Ogneupory dlia steklovarenykh
pechei; proizvodstvo i primenenie. Pod red. G.V.Kukoleva. Moskva, Gos.
izd-vo lit-ry po stroit. materialam, 1955. 190 p. (MLRA 7:6)
(Refractory materials) (Glass manufacture)

SOLOMIN, N.V.

USSR.

Dilatometric examination of monothierite and kaolinite sedimentary rocks. N. V. Solomin and N. A. Fridlender, *Voprosy Petrog. i Mineralog. i Gorn. Stank. S.S.S.R.* 4, 430-49 (1963).—The widespread occurrence of quartz as an accessory mineral in clay sediments is easily detected by the dilatometric effect of its $\alpha \rightleftharpoons \beta$ inversion. Pure kaolinite does not show a corresponding dilatometric effect. The low-temp. effects (at 100° to 200°) are irreversible and only belong to adsorption H₂O in the clay minerals. In highly siliceous refractory monothierite clays (e.g., from Druzhkovsk) and certain kaolins (Latninsk) the quartz effect is nearly completely suppressed after calcination at 900°, but it reappears after a calcination at 1300°. Siliceous monothierite clays differ also by the high changes in the av. expansion coeffs.; after calcination at 1100° these clays show higher expansion coeffs. which, however, are decreased again at highest temps., evidently by the formation of a SiO₂-rich glass. The kaolinite clay of Latninsk shows after heating to 1800° a distinct dilatometric effect between 160° and 180° the reason for which is not known (perhaps a tridymite effect?).
W. Bittel

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SOLOMON, N. V.

Chemical Abst.
Vol. 48 No. 3
Feb. 10, 1954
Glass, Clay Products, Refractories,
and Enameled Metals

Changes in microstructure of electromelted mullite refractory at service temperatures. N. V. Solomon and N. M. Gaidina. *Steklo i Keram.* 10, No. 1, 18-20 (1953).—Three lab-made and one com. electromelted mullite refractories were heated to 1450° in 3.5 hrs., held for 3 hrs., and then cooled rapidly in water. Chilled specimens showed more glass than those cooled slowly; the former showed no ore minerals, while the latter had up to 3%. Chilled specimens also had more pores. For flux content of 1.5-4.0% there were no structural changes in either; for over 6% there were certain structural changes. B. Z. Kamich

SOLAMIN, H. J.

chem

Chem Abs v48

1-25-54

Glass, Clay Products

Characteristics and service of improved electromelted
zirconia mullite refractory. N. V. Solomin, N. M. Gaidina,
A. A. Galstyan, M. B. Sulkhanov, and G. A. Karnaukhov.
Steklo i Keram. 10, No. 3, 28-33 (1953). Tests were made
in glass-melting furnaces of ZrO₂-mullite refractories contg.
(a) not over 5.43% fluxes and (b) 6.48%. Stability of (a)
was 20-30% higher and the corrosion more uniform.
B. Z. Kamich

1-4-54

SOLGHI, N.V.

91. The service of glass tanks. — N. V. Solgikh (Glass & Ceramics, Moscow, 10, No. 6, 24, 1953). Reference is made to earlier articles (ibid., 1792 and 1794, 1953). Although it is desirable to have large tank-blocks in order to reduce the number of joints, it is difficult to produce such blocks with accurate dimensions, unless they are trued-up after firing. The last measure advocated is the cooling of tank walls to reduce the rate of glass flow adjacent to the wall. It was also observed that a reduction of the melting-temp. by 50° C. reduces the contamination of the glass by the refractories by 3 times.

Solomin, N. V.

4

CH ✓ Role of surface tension in the technology of silicates and the anomaly of surface tension in beryllium silicate melts. N. V. Solomin. *Trudy Vsesoyuzn. Kompleks. Nauch. Issledovaniy. Seriya: Stroitel. Materialy i Sost. Tekh.* 1953, No. 33, 27-30; *Referat. Zhur., Khim.* 1953, No. 9360. —It was discovered earlier (Appen, et al., *C.A.* 47, 4055e) that BeO decreases the surface tension in silicate melts to a greater extent than do the other related oxides MgO, SrO, CaO, BaO. The m.p. and coeff. of expansion of BeO indicate a lower amt. of intermol. energy in BeO than in MgO, SrO, CaO, or BaO. The anomaly is attributed to the structural features of BeO, the other oxides have a cubic lattice and octahedral coordination and the structure of BeO is characterized by a hexagonal lattice and tetrahedral coordination. Marjorie Kethner

PM

SOLOMIN, N.V., doktor tekhn.nauk, prof.; GALDINA, N.M., kand. tekhn.nauk

Improving the composition and technology in preparing electrically melted zirconia mullite. Trudy VNIISTekla no.33:42-64
'53. (MIRA 12:1)
(Refractory materials--Testing) (Zirconia) (Mullite)

USSR/ Miscellaneous - Glass flaws

Card 1/1 Pub. 104 - 10/12

Authors : Solomin, N. V., Dr. of Tech. Sc., Professor

Title : Certain sources and methods for the prevention of glass flaws

Periodical : Stek. i ker. 1, 29-31, Jan 1954

Abstract : The various causes resulting in glass flaws during the manufacturing processes are explained. Methods for the prevention of flaws in glass are discussed. Two USSR references (1937-1953). Drawing.

Institution:

Submitted:

Solomin, N.V.

USSR/ Miscellaneous - Bibliography

Card 1/1 Pub. 104 - 12/12

Authors : Kitaygorodskiy, I.I.

Title : A useful book for glass industry workers

Periodical : Stek. i ker. 5, page 32, May 1954

Abstract : The editorial presents an abstract of N.V. Solomin's book, concerning, "The Production of Special, Highly-Qualitative Refractories for Glass Industry, Economization of Refractory Materials and Technological Problems of Glass Production."

Institution:

Submitted:

SOLOV'EV, N. V.

Methods for Preventing the Silky Sheen and Waviness (Undulation) in
Glass. Leka Promishlenost (Light Industry), #10:22:Oct 54

Solomin, N. V.

5000

Notes ✓ Effect of refractories on the appearance of seed and bubbles in molten glass. N. V. Solomin, A. A. Sokolov, and V. D. Serkova. *Izv. Akad. Nauk SSSR, Khim. i Fiz.* 1954, No. 34, 67-71; *Referat. Zhur., Khim.* 1955, No. 2515. — A series of expts. was carried out to test whether mullite refractories caused the formation of seed and bubbles. Fireclay crucibles of 2-kg. capacity were charged with fine cullet pieces of various refractories and placed under the charge. The crucibles were then heated to 1450°, kept for 3 hrs. at this temp., then rapidly cooled to 1000, 1100, 1150, or 1200°, and kept at this temp. for 6 hrs. The cooled crucibles were broken longitudinally and the glass examd. for bubbles and seed. These tests showed that at 1000-1200° the largest quantity of seed was caused by high-Al₂O₃ fused refractories contg. reduction products which reduce the sulfate in the glass, thus causing evolution of SO₂. Electrically fused zircon mullite and some other refractories contribute to the formation of small bubbles in the glass at temps. below 1200° and, therefore, should not be used in the walls of the cooling part of glass-melting furnaces. M. Hosh

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Am. J. Sci.

SLOMIN, N.V.

62
 Presence of chemical compounds in fused alkali borates, and their volatility. N. V. Solomin and L. V. Potemkina. *Doklady Akad. Nauk S.S.S.R.* 98, 91-3 (1954); cf. Botvinkin, *Sbornik Sirovnie Stekla* (Moscow) 1933. 5; Grebenshchikov, *ibid.* 101; Cole and Taylor, *C.A.* 29, 3584.
 — From melts of $R_2O \cdot 2B_2O_3$; $R_2O \cdot B_2O_3$; $2R_2O \cdot B_2O_3$ ($R = Li, Na, K, Rb$) the volatility and the compn. of the vapor phase were detd. at 1100°, 1200°, 1300°, 1400° (by weight loss, and chem. analyses). Independently, analyses were made of the condensates on the cold walls of the porcelain tube in which the Pt crucible with the melts had been suspended. The accuracy of the detns. of the condensates was for both methods about 1%. Completely volatile are: $Na_2O \cdot B_2O_3$ at 1400°; $K_2O \cdot B_2O_3$ and $2K_2O \cdot B_2O_3$ at 1300°. $Li_2O \cdot B_2O_3$ and $Li_2O \cdot 2B_2O_3$ vaporize at 1400° without perceptible change of compn., but $2Li_2O \cdot B_2O_3$ is changed to $Li_2O \cdot B_2O_3$ in the vapor. Also $Na_2O \cdot B_2O_3$ volatilizes without decompn. up to 1400°; $Na_2O \cdot 2B_2O_3$ is partially decompd. above 1200°, and at 1400° the vapor phase contains 30% $Na_2O \cdot B_2O_3$. The max. in the fusion diagram is rather sharp for $Na_2O \cdot B_2O_3$, but very flat for the diborate. $2Na_2O \cdot B_2O_3$ is not decompd. in its vapor at 1300°, but at 1400° $Na_2O \cdot B_2O_3$ is formed in the condensate. $K_2O \cdot B_2O_3$ and $2K_2O \cdot B_2O_3$ are not decompd. below 1300°. $K_2O \cdot 2B_2O_3$ is entirely decompd. and changed to $K_2O \cdot B_2O_3$ in the vapor condensate. Meta-borates are the most stable borates; the vapor pressure of free B_2O_3 is much inferior to that of free R_2O and of the meta-borates. In the manuf. of borosilicate glasses it is important to learn from the authors' results that $K_2O \cdot B_2O_3$ is the most volatile constituent in glass melts. With increasing at. wt. and cationic radius of the alkali metals an approximate function is plotted for the volatilization of the meta-borates, detd. in g./sq. cm. per sec. $\times 10^5$ at const. temp.
 W. Eitel

SOLOMIN N V

USSR/Chemical Technology. Chemical Products and their Application.

J-12

Glass. Ceramics. Building Material.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27623.

Author : N.V. Solomin.

Inst :

Title : Chemical Compounds in Boron Glasses.

Orig Pub: vSb: Stroyeniye stekla. M.-L., AN SSSR, 1955, 230-233.

Abstract: Experiments are described, in the results of which it has been established that metaborates ($R_2O.B_2O_3$) evaporate without decomposition, if borate fuses were heated. This fact proves the stability of metaborates in fuses. Checking of the results of these experiments with industrial borosilicate glass containing potassium oxide as the alkali showed also that mainly potassium metaborate evaporated from the glass in this case. The author thinks that the formation of borates in fuses may explain the so-called anomalies of borate and borosilicate glasses in the "composition-property" graphs without resorting to the hypothe-

Card : 1/2

-23-

USSR/Chemical Technology. Chemical Products and their Application.
Glass. Ceramics. Building Materials.

J-12

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27623

sis of alteration of boron co-ordination. It seems that some stoichiometrically definite compounds of the type of salts in silicate systems prove to be sufficiently strong in fuses and, consequently, also in glass. Many peculiarities of physical and chemical properties of silicate glasses are probably connected with this. See RZhKhim, 1957, 1565.

Card : 2/2

-24-

Solomin, N.V.

USSR/Miscellaneous - Glass furnaces

Card 1/1 Pub. 104 - 6/8

Authors : Solomin, N. V., Prof. Dr. of Tech. Sc.

Title : New types of refractories for glass furnaces

Periodical : Stek. 1 ker. 3, 23-24, Mar 1955

Abstract : The development and testing of two new types of high temperature resistant refractories (ceramic high alumina refractory and melted high alumina zirconium refractory - Bakor -) for the interior of glass furnaces are reported.

Institution :

Submitted :

USSR/Chemical Technology - Chemical Products and
Their Applications - Silicates. Glass.
Ceramics. Binders.

I-10

Abs Jour : Solomin, N.V.
Inst :
Title : Correction to the Article "Modern Trends
in the Development of Refractories Pro-
duction and Their Application in the Glass
Industry".
Orig Pub : Steklo i keramika, 1955, No 9, 3
Abstract : See RZhKhim, 1956, 36679

Card 1/1

SOLOMIN, N. V.

✓ New types of refractories for glass-melting tanks. N. V. Solomin
(Glass & Ceramics, Moscow, 1955, 12, No. 3, 28).—Thermite-
corundum refractories have a shorter life than zircon-mullite
blocks, which are cheaper. The former have a high porosity
(25—30%) and contain up to 8% of Fe_2O_3 . Attempts to improve
these blocks have failed. Reference is made to a highly aluminous
block and to a fused Al_2O_3 - ZrSiO_4 refractory known as Bacor.

The former contains 68% of Al_2O_3 and 1% of Fe_2O_3 , and has an
apparent porosity of 10%; it is particularly suitable for the upper
part of the tank connecting the melting and cooling sections.
Bacor consists of electrically fused Al_2O_3 and zircon, with some
mullite; it contains only 0.5% of Fe_2O_3 and is 1.5—2 times as
cheap as the aluminous tank-block.

SOLOMIN, N.V., professor, doktor tekhnicheskikh nauk

Modern trends in the development of production and use of refractories
in glass manufacture. Stek. i ker. 12 no. 8:4-6 Ag'55. (MIRA 8:11)
(Refractory materials) (Glass manufacture)

137-1958-2-2293

Translation from. Referativnyy zhurnal. Metallurgiya, 1958. Nr 2, p 12 (USSR)

AUTHOR: Solomin. N.V.

TITLE: On the Physicochemical Fundamentals of the Fusing of Refractories
(K fiziko-khimicheskim osnovam proizvodstva plavlennykh ogneporov)

PERIODICAL: V sb.: Fiz.-khim. osnovy keramiki. Moscow, Promstroy-
izdat, 1956, pp 359-375

ABSTRACT: Attention is centered on the special features of the technology of fused refractories obtained by casting from melts, and particularly on such matters as the viscosity of and convection in the melts, crystallization (rate of growth, dimensions, geometrical configurations, effect of additives, formation of pores), reducing reactions (formation of Fe-Si), and on the annealing of the castings. Data are given on certain characteristics of different types of refractory. The calculated viscosity of fused SiO_2 at boiling temperature (2230°) equals approximately 1350 poises. Bibliography. 45 references. S.G.

Card 1/1 1. Refractory materials--Fusing 2. Refractory materials--Characteristics

SOLOMIN, N.Y.

Notes

The production and testing of baddelyite-corundum ("Bakor") electrofused refractories. N. V. Solomin and N. M. Gaidina. *Steklo i Keram.* 13, No. 1, 1966. In studies made to explore the properties of Zr refractories for use in the lining of glass furnaces, bricks of the following percentage compns. in SiO_2 , ZrO_2 , and Al_2O_3 , resp., with fractional percentages of TiO_2 , Fe_2O_3 , MgO , CaO , and Na_2O were made up: (1) 14.4, 15.2, and 6.0; (2) 15.1, 22.6, and 60.6; (3) 21.7, 7.6, and 69.9; (4) 23.0, 5.5, and 68.1. Av. coeff. of expansion in the 20-1100 range was 7.0×10^{-6} , comparable with that of electrofused mullite or Zr mullite. The ds. (g./cc.) were 3.09, 3.23, 3.23, and 3.00; apparent porosities were 10.2, 7.6, 0.5, and 1.3%. Exptl. runs with these refractories under furnace conditions showed (1) and (2) to be superior to the other two, e.g., rates of attack by a lime-soda glass in mm./day were 0.33, 0.32, 0.58, and 0.38, resp.

H. L. Olin

Solomin, N. V.

2606. Corrosion of refractories by molten glass containing a high proportion of alkaline earth oxides. N. V. SOLOMIN and N. M. GARDINA (Glass & Ceramics, Moscow, 13, No. 3, 1, 1958) in Russian. Chy-Erdim, zircon-mullite, corundum and fireclay tank-blocks were investigated. Results indicate that the best refractory for continuous tanks melting low-alkali high-alkaline-earth glass is fused quartz. In high alumina low-alkali glasses a general increase in Al_2O_3 usually lowers, and an increase in SiO_2 increases viscosity. (1 fig., 3 tables.)

Maths

PM MK

SOLOMIN, N.V., doktor tekhnicheskikh nauk, professor; GALDINA, N.M.;
SULKHANOV, M.B.; LODOCHKIN, P.A.

Manufacture and industrial testing of "bakor." Stek. i ker.
13 no.9:9-14 S '56. (MLRA 9:10)

(Refractory materials)

SOLOMON, H. V.

V. Microstructure of electrofused baddeleyite-corundum refractories before and after service in a glass fusion furnace. **M. V. Solomin, N. M. Gaidina, and V. V. Lapin, Ogcnepry 87, 289-74 (1955).** Zircon concentrates and alumina are electrofused and cast to blocks in a pilot plant (frpt. of the mullite plant of Brevan (Armenia)). The product called "Bakor" was examd. in a soda-sulfate glass tank in comparison with zircon-mullite blocks (cf. Solomin and Gaidina, following abstr.); they proved to be much superior to the latter material in corrosion resistance. The microscopic examn. showed corundum and baddeleyite as the characteristic cryst. phases in the structure of Bakor, embedded in a nearly colorless glass (μ from 1.503 to 1.513), with few mullite needles. The high viscosity of the siliceous glass is important for the stability of the refractory material in service, as is its high purity (very low in Fe_2O_3 , TiO_2 , etc.). The reaction of the glass melt with Bakor is demonstrated by chem. analyses of different zones in the used blocks, together with their microscopic characteristics. The corrosion chiefly removes Al_2O_3 from the refractory material, and Na_2O is introduced (3% of it in the transition zone, about 6% on the hot surface portion). ZrO_2 is relatively enriched (from 15% to 18%), while Al_2O_3 is reduced (from 70.6% to 61.6%). The rather fine cryst. reaction zone shows rounded corundum with distinct corrosion, dendritic "chains" of baddeleyite, and much glass ($\mu = 1.510$ and higher), with mullite needles, and nepheline. The latter aluminosilicate is the typical reaction product of the dissolved Al_2O_3 with the molten glass. The fine-cryst. ZrO_2 can be transferred into the glass by convection but cannot be detrimental; both ZrO_2 and nepheline are finally resorbed.

W. E. H.

USSR/Chemical Technology - Chemical Products and Their Application. Silicates.
Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62329

Author: Solomin, N. V., Galdina, N. M.

Institution: None

Title: Investigation of the Corrosion of Refractories by Glass Melts

Original

Periodical: Tr. Vses. n.-i. in-ta stekla, 1956, No 36, 43-50

Abstract: Tests were carried out on the resistance to glass melts of a number of refractories according to the method developed by the authors. In the tests use was made of ordinary window glass and glass of eutectoc type, of the system $\text{CaO-MgO-Al}_2\text{O}_3\text{-SiO}_2$ containing 3-10% Na_2O , chamotte, thermitocorundum, zirconomullite, bacor, quartz, etc. It was found that fused quartz is the most stable refractory on exposure to low-alkali, high alumina glass melts containing large amounts of alkaline-earth oxides. This is due to the formation of a viscous protective film of silica at the surface of the refractory as a result of interaction with the glass melt.

Card 1/1

SOLOMIN, N.V., doktor tekhn. nauk, prof.

Production of compact corundum refractories electrically fused in
laboratory kilns. Trudy VNIISTekla no.37:32-35 '57. (MIRA 11:1)
(Refractory materials) (Corundum)

SOLOMIN, N.V., doktor tekhn. nauk, prof.; GARDINA, N.M., kand. tekhn. nauk.

Magnesia-zircon-millite electrically fused refractories for glass
furnaces. Trudy VNIISTekla no.37:36-43 '57. (MIRA 11:1)
(Refractory materials) (Glass furnaces)

AUTHOR: Solomin, N. V., Professor SOV/72-53-10-12/18
TITLE: Glass and Ceramics at the World Fair in Brussels (Steklo i keramika na Vsemirnoy vystavke v Bryussele)
PERIODICAL: Steklo i keramika, 1958, Nr 10, pp 42-43 (USSR)
ABSTRACT: Glass took a prominent part at this fair. Ceramics were less shown. In the Soviet pavillon glass walls of a length of 150 and 72 m, and a height of about 20 m, as well as glass ceilings were exhibited. In contrast to other pavillons semitransparent glass with a rolled chagrin surface was used (Figs 1 and 2 of the enclosures). In figure 3 the Paris pavillon and in figure 4 that of Belgium are shown. In figure 5 the crystal products exhibited by the Leningradskiy zavod khudozhestvennogo stekla (Leningrad Factory of Artistic Glassware) are shown. The glass exhibition of the Czechoslovakian pavillon is said to have been very interesting (Figs 6 and 7). In the figures 8 and 9 Belgian crystalware and colored glass are shown, and in figure 10 some from Finland. In the figures 11 and 12 Belgian ceramics are shown. In figure 13 a porcelain set of the Soviet factory imeni Lomonosov, and in figure 14 porcelain products of the

Card 1/2

Glass and Ceramics at the World Fair in Brussels

SOV/72-58-10-12/18

Czechoslovakian pavillon are shown. In figure 15 Belgian faience, and in figure 16 porcelain products are shown. Finally the author states that Western Europe showed good technical achievements as regards quality and finishing, but as regards taste the USSR and the People's Democracies had proved to be superior. There are 16 figures.

Card 2/2

AUTHOR: Solomin, N.V., Professor, Doctor of Technical Sciences 72-58-6-18/19

TITLE: A Collection of Scientific Works on Glass- and Rock-Smelting (Sbornik nauchnykh rabot po steklu i plavlenym gornym porodam)

PERIODICAL: Steklo i Keramika, 1958, Vol. 15, Nr 6, pp. 48-48 (USSR)

ABSTRACT: The author in short discusses the work entitled: "Science and Research in the Glass Industry" (Veda a výzkum v průmyslu sklárském, Rada III, Praha, 1957), which was published in Czechoslovakia.

1. Glass industry--USSR 2. Scientific research--USSR

Card 1/1

15(2)

SOLOMIN, N.V., prof., doktor tekhn.nauk

What's new in glass manufacture in Sweden. Stek. 1 ker. 17 no.6:43-
44 Je 160. (MIRA 13:6)

(Sweden--Glass manufacture)

--SOLOMIN, Nikolay Vasil'yevich, doktor tekhn.nauk, prof.; ABUTKINA, E.I.,
red.izd-va; TEMKINA, Ye.L., tekhn.red.

[Refractories for glass furnaces; production and use] Ogneupory
dlia steklovarenykh pechei; proizvodstvo i primeneniye. Izd.2.,
perer. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.
materialam, 1961. 185 p.

(MIRA 14:6)

(Refractory materials)

(Glass furnaces)

KITAYGORODSKIY, I.I., doktor tekhn. nauk, prof.; KACHALOV, N.N., prof.;
VARGIN, V.V., doktor tekhn. nauk, prof.; YEVSTROP'YEV, K.S.,
doktor tekhn. nauk, prof.; GINZBURG, D.B., doktor tekhn. nauk,
prof.; ASLANOVA, M.S., doktor tekhn. nauk, prof.; GURFINKEL', I.Ye.,
inzh.; ZAK, A.P., kand. tekhn. nauk; KOTLYAR, A.Ye., inzh.; PAVLUSH-
KIN, N.M., doktor tekhn. nauk, prof.; Sentyurin, G.G., kand. tekhn.
nauk; SIL'VESTROVICH, S.I., kand. tekhn. nauk, dots.; SOLINOV, F.G.,
kand. tekhn. nauk; SOLOMIN, N.V., doktor tekhn. nauk, prof.; TEMKIN,
B.S., kand. tekhn. nauk; GLADYSHEVA, S.A., red. izd-va; TEMKINA, Ye.L.,
tekhn. red.

[Glass technology] Tekhnologiya stekla. Izd.3., perer. Moskva, Gos.
izd-vo lit-ry po stroit., arkhitekt. i stroit. materialam, 1961. 622 p.
(MIRA 14:10)

1. Chlen-korrespondent AN SSSR (for Kachalov).
(Glass manufacture)

15.25.0

29119
S/020/61/140/005/015/021
B103/B110

AUTHORS: Solomin, N. V., Shelyubskiy, V. I., and Vaysfel'd, N. M.

TITLE: Formation of glass-microcrystalline structures

.ERICDICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 5, 1961, 1087-1089

TEXT: This paper deals with the study of changes in the dimensions of new formations in the crystallization of glass containing SiO_2 , Al_2O_3 , and TiO_2 . The changes Δs of the interface, and ΔZ of the isobaric-isothermal potential are interrelated by $I\Delta s = \Delta Z$, where I denotes the intensity of the surface energy. Since the entropy change $\Delta S = -(\partial \Delta Z / \partial T)_p$, $\Delta S = -\Delta s (\partial I / \partial T)_p$ is valid, and for the enthalpy change holds $\Delta H = \Delta s [I - T(\partial I / \partial T)_p]$. Samples of initial glass were crystallized at two different temperatures. In the last stage of crystallization, the samples of both series were heated in the thermostat at 1050°C . Carbon replica of the crystallized samples were studied under the EM-100 (EM-100) electron microscope with a 14000-fold magnification. Prior to this study they were etched for 5-20 sec in 12% HF. X

Card 1/3

Formation of glass-microcrystalline...

29119
S/020/61/140/005/015/022
B103/B110

Two main crystalline phases could be distinguished. By X-ray analysis they were identified as disthene and rutile. The disthene crystals were short prisms. Rutile had oblong prisms with pyramidally inclined small facets. The difference in the crystal sizes of the two phases was very low. The crystals increased in size as the time of treatment at constant temperature was extended, their number, however, decreased while the phase composition was kept constant. This is due to an absorption of smaller crystals by larger ones. The results show that the process of redistribution of microcrystalline structures is of considerable importance in thermal treatment. Since the heterogeneity of composition occurring in the initial semiproduct favors new formations in the initial and thus also in the final stage, a maximum chemical homogeneity of the glass semiproduct is necessary to guarantee maximum homogeneity of the glass-microcrystalline structure. There are 3 figures, 1 table, and 7 references: 1 Soviet-bloc, and 2 non-Soviet-bloc.

ASSOCIATION. Gosudarstvennyy nauchno-issledovatel'skiy institut elektro-
tekhnicheskogo stekla i tekhnologicheskogo oborudovaniya
(State Scientific Research Institute for Electrotechnical
Glass and Technological Equipment)

Card 2/3

S/072/62/000/008/001/002
B117/B101

AUTHOR: Solomin, N. V., Doctor of Technical Sciences, Professor
TITLE: Thermomechanical stresses in joints made of glass, ceramics,
metals and other materials
PERIODICAL: Steklo i keramika, no. 8, 1962, 14 - 15
TEXT: For the calculation of joints, allowing for thermomechanical stresses,
the equations

$$P_1 = \Delta\alpha\Delta t E_1 E_2 h_2 / E_1 h_1 + E_2 h_2$$

and

$$P_2 = \Delta\alpha\Delta t E_1 E_2 h_1 / E_1 h_1 + E_2 h_2$$


were derived for the case of cylindrical parts, where one part clasps the
other. $\Delta\alpha = \alpha_2 - \alpha_1$ (α coefficient of linear expansion; Δt is the
temperature difference between the beginning and end of cooling; E is

Card 1/2

Thermomechanical stresses ...

S/072/62/000/008/001/002
B117/B101

Young's modulus; h is the thickness of the layer and P is the absolute value of the tangential stress. Joints of other configurations can also be calculated by means of these equations which may be applied irrespective of whether the parts of the joint are cooled or heated. There are 3 figures.



Card 2/2

BEREZHNYY, A.I.; BRODSKIY, Yu.A.; BRONSHTEYN, Z.I.; VEINBERG, K.L.;
GALDINA, N.M.; GLETMAN, B.A.; GINZBURG, D.B.; GUTOP, V.G.;
GUREVICH, L.R.; DAUVAL'TER, A.N.; YEGOROVA, L.S.; KOTLYAR,
A.Ye.; KUZYAK, V.A.; MAKAROV, A.V.; POLIYAK, V.V.; POPOVA,
E.M.; PRYANISHNIKOV, V.P.; Sentyurin, G.G.; SIL'VESTROVICH,
S.I., kand. tekhn. nauk, dots.; SOLOMIN, N.V.; TEMKIN, B.S.;
TYKACHINSKIY, I.D.; SHIGAYEVA, V.F.; SHLAIN, I.B.; EL'KIND,
G.A. [deceased]; KITAYGORODSKIY, I.I., zasl. deyatel' nauki i
tekhniki RSFSR, doktor tekhn. nauk, prof., red.; GOMOZOVA,
N.A., red. izd-va; KOMAROVSKAYA, L.A., tekhn. red.

[Handbook on glass manufacture] Spravochnik po proizvodstvu
stekla. [By] A.I. Berezhnoi i dr. Pod red. I.I. Kitaigorodskogo
i S.I. Sil'vestrovicha. Moskva, Gosstroizdat. Vol. 2. 1963.
815 p. (MIRA 16:12)

(Glass manufacture)

ACCESSION NR: AP4040683

S/0072/64/000/006/0012/0015

AUTHOR: Solomin, N. V.

TITLE: Structural parameters and properties of glass

SOURCE: Steklo i keramika, no. 6, 1964, 12-15

TOPIC TAGS: glass structure, vitreous glass, crystalline glass, alumina glass, Y parameter, N parameter

ABSTRACT: This is an abstract discussion, sometimes based on previous experimental work by the author, to determine the functional dependences of glass composition, structure and properties. The hypothetical dependence on changing ion coordination is criticized and it is suggested that changing chemical bonds due to the formation of new compounds account for nonlinear changes in glass properties. The relationship of vitreous/crystalline structure of glass is discussed and the Y-parameter (proposed by J.M. Stevels: Y=average number of "bridge" oxygen ions in each polyhedron, /Philips Techn. Review, 1960/61, vol 22 No 9/10/) is criticized as impractical and incompatible with experimental results. Instead, the author

Cord 1/2

ACCESSION NR: AP4040683

proposes the following structural relation for ordinary oxide glasses: $N = M/P$, where M is the number of metal oxide molecules (basic type oxides) and P is the number of monomer oxide molecules forming the polyhedron. The greater the modification of the disordered polyhedron lattice of the vitrification element, the greater N. Since Al_2O_3 can be both a lattice former and a modifier, Y and M calculation for alumina containing glass is difficult. While Stevels considers $Y = 2$ the threshold of inversion, the author considers glass types with $N = 1$ as being invert. The conclusion is that while changing glass properties depends on changing Y and N parameters, they also depend on the structure and properties of atoms: electron numbers, nuclear charge, character of the outside electron shell, ion size, quanta characteristic and on the character and power of chemical bonds between components. Orig. art. has: 2 figures, 2 tables.

ASSOCIATION: None

SUBMITTED: 00

SUB CODE: MT
Card 2/2

NR REF SOV: 008

ENCL: 00
OTHER: 003

L 14460-65 EWP(e)/EPA(s)-2/ENT(m)/EPF(c)/EPF(n)-2/EWP(v)/EPR/EPA(w)-2/T-2/
EPA(bb)-2/EWP(b)/EMA(h) Pq-4/Pr-4/Ps-4/Pt-10/Pu-4/Pab-10/Pad/Peb AFWL/BSL/
ASD(a)-5/ASD(m)-3/ESD(gs)/ESD(t) WH/WW/MJW/JD/HW/JG
ACCESSION NR: AP4049087 S/0072/64/000/011/0013/0014

AUTHOR: Solomin, N. V. (Doctor of technical sciences) B

TITLE: New glass-metal and ceramic-metal systems

SOURCE: Steklo i keramika, no. 11, 1964, 13-14

TOPIC TAGS: glass metal system, ceramic metal system, glass electric property, glass thermal property, glass to metal joint, electrotechnical glass

ABSTRACT: A new system of glass-to-metal matched joints having a coefficient of linear thermal expansion α of about $70 \times 10^{-7}/\text{deg C}$ for both materials has been introduced into vacuum electrotechnology in order to fill the gap between 52×10^{-7} and $87 \times 10^{-7}/\text{deg C}$ in the series of materials presently being used. The metal component of the system was developed on an iron-nickel base (H-38 alloy) by the Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute of Ferrous Metallurgy). The glass component was developed on a base of alumina borosilicate glass.

Card 1/2

L 11460-65

ACCESSION NR: AP4049087

3

containing MnO, CaO, BaO, and R₂O. The α values of the H-38 alloy and of the newly developed glasses are close to $70 \times 10^{-7}/\text{deg C.}$ The glasses have improved dielectric properties and thermal stability, as compared to glasses which are matched with platinum; they also display increased chemical resistance. Data on the composition and coefficient of linear expansion are tabulated for a series of glasses and ceramics which are suitable for matched or low-strained joints to H-38, titanium alloys, or tantalum metal. Orig. art. has: 2 tables.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, MM

NO REF SOV: 001

OTHER: 000

ATD PRESS: 3134

Card 2/2

SOLIMEN, N.V., doktor tekun. nauk; SOLIMEN, A.N.

Inelastic deformation of glass and ceramic products under their
own weight during annealing. Stek. i ker. 22 no.8:19-21 Ag '65.
(MIRA 18:9)

L 40287-65 EWP(e)/EPA(s)-2/ENT(m)/T VH
ACCESSION NR: AP5005025

S/0131/65/000/002/0028/0032

AUTHOR: Rustambekyan, S. F.; Solomin, N. V.

TITLE: Study of the phase composition of fused high-alumina (mullite) refractories

SOURCE: Ogneupory, ³⁰no. 2, 1965, 28-32

TOPIC TAGS: mullite refractory, alumina refractory, fused refractory, refractory phase composition, silica content, refractory microstructure, mineralizer content, corundum

ABSTRACT: Laboratory investigations were carried out in order to determine the changes in the phase composition and microstructure of fused mullite refractories as a function of the ratio of aluminum oxide to silicon dioxide and of the type and quantity of the mineralizers (Fe_2O_3 , CaO , TiO_2 , Na_2O , MgO , MnO) introduced into the refractory. Six series of specimens were prepared by fusion in a solar furnace. The specimens were investigated by the petrographic method, chemical analysis, and x-ray powder method. It was found that CaO and particularly Na_2O promote the formation of corundum and simultaneously increase the amount of the vitreous phase, thus decreasing the amount of mullite crystallites. The oxides of magnesium, manganese, and titanium promote only a very slight formation of corundum, and cause the vitreous phase to be evenly distributed throughout the

Card

1/2

L 40287-65

ACCESSION NR: AP5005025

specimen, thus increasing both the resistance to vitrification and the thermal stability of the refractory. The results of the study confirm the conclusions drawn earlier by other investigators to the effect that the fusion of mullite is congruent. "Chemical analyses and treatment of the powders were carried out by S. N. Avsharova." Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii Goskhimkomiteta pri Gosplane SSSR (Chemistry scientific research institute, State chemistry committee, State planning commission, SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 007

OTHER: 001

Card

2/2

SOLOMIN, P. M.

"Case of Mediastinal Emphysema in Children," *Pediatriya*, No. 2, 1948. Mbr., Hosp.
Surgical Clinic, Ivanovo Med. Inst., -c1948-.

SOLOMIN, P.S.

Determination of the friction coefficient between copper and steel
at high rates of deformation. Izv. vys. ucheb. zav.; Fiz. no.1:29-34
'58. (MIRA 11:6)

1. Tomskiy gosuniversitet imeni V.V. Kuybysheva.
(Copper--Testing) (Steel--Testing) (Friction)

SOLOMON, P.S., prof.

Controlling infectious atrophic rhinitis of swine. Veterinariia
41 no.6:42-47 Je '64. (MIRA 18:6)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.

SOLOMIN, V.

"The background of the alternating current in the low frequency amplifiers,"
Radio, 1951.

124-1957-10-12201

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 10, p 137 (USSR)

AUTHORS: Bakshi, O. A., Solomin, V. I.

TITLE: Study of Residual Stresses After Automatic "Electronic-Tornado" Welding (Issledovaniye ostatochnykh napryazheniy posle avtomaticheskoy vibrodugovoy naplavki)

PERIODICAL: V sb.: Vosstanovleniye iznoshennykh detaley avtomat. vibrodugovoy naplavkoy. Chelyabinsk, 1956, pp 126-132

ABSTRACT: The article presents results of measurements of the residual stress after automatic "electronic-tornado" welding of cylindrically shaped machine parts 50 mm in diameter, made of steel "20" where the experiments were conducted by means of the incision method. Along the surface of the specimen the existence of tangential tensile stresses reaching 27-30 kg/mm² was revealed, and in the central zone tangential & radial compressive stresses of 8-12 kg/mm² were found.

G. A. Nikolayev

Card 1/1

SOLOMIN, V. I., CAND TECH SCI, ^{Depyri} "COMPUTATION OF RECTANGULAR
PLATES ON ELASTIC ^{semi} ~~half~~-SPACE BY THE GRID METHOD." SVERDLOVSK,
1961. (MIN OF HIGHER AND SEC SPEC ED RSFSR. URALS⁹ POLYTECH
INST IMENI S. M. KIROV). (KL-DV, 11-61, 222).

-183-

SOLOMIN, V.I.

Calculation of beams on an elastic foundation by the method of finite differences. Trudy Ural. politekh. inst., no. 102: 157-169 '61.

Calculation of compressed and bent rods by the method of finite differences. 170-175 (MIRA 16:11)

SOLOMIN, V.I. (Chelyabinsk)

Design of foundation slabs for a load applied near a corner.
Stroi.mekh.i rasch.soor. 5 no.2:6-11 '63. (MIRA 16:6)
(Foundations) (Elastic plates and shells)

ACC NR: AT6035485

SOURCE CODE: UR/2572/66/000/012/0072/0004

AUTHOR: Solomin, Y. I. (Candidate of technical sciences); Chernyavskiy, O. F. (Engineer); Komov, V. S. (Engineer); Shirokov, V. N. (Engineer)

ORG: None

TITLE: Calculation of a conical shell on a digital computer

SOURCE: Raschety na prochnost'; teoreticheskiye i eksperimental'nyye issledovaniya prochnosti mashinostroitel'nykh konstruktsey. Sbornik statoy, no. 12, 1966, 72-84

TOPIC TAGS: conic shell structure, computer application, thin shell structure, shell theory

ABSTRACT: The authors consider a thin elastic conical shell with a load and thickness which vary arbitrarily along the meridian. It is assumed that temperature varies along the generatrix as well as with respect to thickness. The elastic constants are taken as independent of temperature. The computer program used for solving the problem is based on the method of finite differences combined with the method of initial parameters. The program is compact, taking up only 30% of the operative memory of the "Minsk-14" digital computer. The small size of this program gives potential applicability as a component part of a more general program for calculating structures where one of the elements is a conical shell. Machine time is only about ten minutes for computation of all nodal stresses and displacements for the case of

Card 1/2

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[Construction of electric musical instruments] Konstruirovaniye
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1958. 63 p. (Massovaya radiobiblioteka, no.310) (MIRA 12:2)
(Musical instruments, Electronic)

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izd-va; KONYASHINA, A.D., tekhn.red.

[Drawing up plans for housing and municipal services] Metodika
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red. S.P.Borisovskogo. Moskva, Izd-vo M-va kommun. khoz. RSFSR,
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[The district worker's manual; reference and methodological aid
for economic and cultural planning in an administrative dis-
trict] Spravochnik raionnogo rabotnika; spravочно-методиче-
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1. L'vovskiy gosudarstvennyy universitet imeni Franko.
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strakh. 5 no.7:14 JI '62. (MIRA 15:7)

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strakhovaniya pri Permskom oblastnom komitete professional'nykh
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uchrezhdeniy.

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of substituted α -cyanofurans. Izv.AN Arm.SSR.Khim.nauki 17
no.1:89-94 '64. (MIRA 17:4)

1. Institut tonkoy organicheskoy khimii AN Armyanskoy SSR.

NO. 1. 1964, 1.1.1.; HONKANYAN, S.A.; AKOYAN, L.Y.; F. LONDA, 1.1.1.

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Izv. AN Arm. SSR. Khim. nauki 18 no. 4: 397-402, 1965.

(MIRA 18.12)

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Submitted May 27, 1964.

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winter crops. Meteor. i gidrol. no.2:33-34 F '52.

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(Meteorology, Agricultural--Observations)

S/137/60/000/011/023/043
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No.11, p.120, # 25178

AUTHOR: Solomina, P.S.

TITLE: Experiences of Measuring the Metal Pressure on Rolls

PERIODICAL: Tr. Mezhvuz. nauchno-tekhn. konferentsii na temu: "Sovrem.dostizh. prokatn. proiz-va", Vol. 2, Leningrad, 1959, pp. 341 - 347

TEXT: At the "Krasnyy vyborzhets" Plant stationary indicators of metal pressure on rolls, designed by TsNIITMASH, are used on 2 two-and four-high billet mills. The indicators represent universal dynamometers with foil pickups glued into the plunger recess of the liquid dynamometer. The use of the pick-ups made it possible to develop more practicable reduction systems, which were also used to determine the effect of different greases on the magnitude of metal pressure on the rolls when rolling a brass strip billet of 4.5 x 650 mm on the 500-two-high mill. ✓

A.R.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

USSR/Geology

Card 1/1 Pub. 22 - 35/47

Authors : Miklukho-Maklay, A. D., and Solomina, R. V.

Title : New data on the stratigraphy of the carboniferous deposits in the Shartymka River basin (southern Ural).

Periodical : Dok. AN SSSR 101/6, 1105 - 1107, Apr. 21, 1955

Abstract : New geological data are presented on the stratigraphy and fauna of the carboniferous deposits discovered in the Shartymka River basin in southern Ural. Five Russian and USSR references (1900-1950).

Institution : The A. A. Zhdanov State University, Leningrad

Presented by: Academician D. V. Nalivkin, December 27, 1954

SOLOMINA, R.V.

Permian stratigraphy of the northern Karaulakh Range. Inform.
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SOLOMINA, R.V.

Upper Paleozoic deposits in the lower Lena Valley; preliminary report
on field work results of 1959. Inform.biul.NIIGA no.14:23-26 '60.
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(Pay-Khoy Range—Brachiopoda, Fossil)

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Carboniferous sediments in the region of the Lena estuary. Sbor.st.
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(Lena Valley—Paleontology, Stratigraphic)

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Sbor.st.po paleont.i biostrat. no.30:16-35 '62. (MIRA 16:12)

POPOV, Y.N.; SOLOMINA, R.V.; SOMIPATROVA, G.P.

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Dokl. 295. NIIGA. Ser. "Paleont. i biostr." no.6:5-11 '64.
(MIRA 18:12)